
Abstract

Indian economic liberalization policies and institutional changes of the present decade are intended to bring about desired structural changes in the system, and more effective interrelationships among the various economic factors. Areas that were controlled by the authorities previously are changing into market systems, and this has summoned tremendous academic and general interest in gaining knowledge about the changing characteristics of the system. This study is focussed on the changes happening in the Indian foreign exchange sector, due to the recent liberalization policies.

Presently, the Indian foreign exchange market is undergoing remarkable changes due to the requirements of the liberalization period. After the Indian foreign exchange crisis of 1990, Indian Rupee underwent a massive depreciation of roughly 20% against the major currencies in July 1991, during when economy-wide economic reforms were also initiated. Liberalized Exchange Rate Management System was announced in March 1992, and in March 1993 Indian Rupee started floating in the market. The effects of these major policy and regime changes on the rupee rate determination process are analyzed here. To put it in other words, this research work is intended to study the effectiveness of these recent liberalization policies on the Indian foreign exchange market, as reflected by the exchange rate series.

The broad objectives of this study are,

- 1) To review the changes in the Indian exchange rate policies and the Indian foreign exchange market,
- 2) To study the distribution properties of the data series,
- 3) To assess the difference in the volatility of both real and nominal rupee rates across exchange rate regimes,
- 4) To identify the point(s) of structural break in the Indian foreign exchange market due to recent policy changes, and finally,
- 5) To examine whether the determinants of the long-run value of the Indian Rupee are changing due to the recent policy changes.

The review of the Indian foreign exchange market structure and functioning was meant for a proper understanding of the changes happening in the system to be analyzed. Distribution analysis was carried out using descriptive analysis, visual aids, and formal tests, to test for normal distribution and the homogeneity of the chosen data series. The results implied that the monthly exchange rate series for the period September 1975 to June 1998, follow a scale-mixture of normal distributions and thus the possibility of normal distribution with time-varying second moment. In this case, stratification of data set (into homogenous subsets) is best suggested. Next, preliminary volatility analysis was attempted using simple measures of volatility, to get a comparative overview of the rupee rate changes in the different exchange rate regime periods. Here, the results do suggest differences between the two exchange rate regimes, and the recent floating period is found to be artificially more stable. With respect to real exchange rate volatility, the differences studied indicate the changing influence of the price level differential on the rupee rate.

These results of relative volatility analysis are further supported by time-series analysis, though one major turning point could not be identified with the intervention modeling technique. Intervention analysis was meant for the purpose of meaningful choice of data-period and to clarify the effectiveness of the chosen exchange rate policy changes on the exchange rate series. Though this exercise insinuated that there is no one major turning point, the recent policy measures together do seem to have effected a change in the underlying rupee rate formation process, as reflected by the difference in the time-series process of rupee rate series for the two time-periods. Thus, leaving out the transitory period from July 1991 through March 1993, the two data-periods were then analyzed separately for identifying exchange rate determination factors, using cointegration method.

With respect to relationships with fundamentals, the theories that were tested are purchasing power parity, generalized simple asset market model, and co-movement with major currencies. As implied by literature as valid candidates, influence of black market rate, foreign exchange reserves, share price index and its differential, and liquidity ratio on the exchange rate were also studied. Other than purchasing power parity for the

basket-peg period, none of the other factors suggested by the chosen theories of exchange rate determination is found to be cointegrated with the rupee rate for both the exchange rate regime periods. Indeed, there is convincing evidence for cointegration between official and black-market rates for all chosen time-periods.

These cointegration results are indeed very interesting and insightful. For the basket-peg period, the results show that Reserve Bank of India was not blindly following the movements of the major currencies, but has taken into account the fundamental factors like price differential (purchasing power parity), and true market demand and supply as reflected by the black market rate. Thus, though it is to be accepted that depreciative trend was seen to be preferred by the authorities, it was also in line with the PPP and market forces. Further analysis with the black market rate revealed that there was no period-specific lead-lag relationship between the official and black market, but they both were closely cointegrated. This suggests a good response relationship, implying a strong sense of market discipline. With respect to recent float period, lack of any exchange rate determination theory might be due to the fewer number of data-points for that period, and also because of the on-going liberalization policies in process.

To conclude, though Reserve Bank of India is still seen to be influencing the rupee rate to aid a smooth transition process, it can be said that the rupee rate determination process now is different from the one during basket-peg period, and the Indian foreign exchange market is facing a new reality. The unique feature of this study is that, it includes the recent liberalization period that has not been subject to rigorous analytical exercise till now. This is indeed an important contribution, which will lead to understanding the evolving market structure. In addition, this study *presents* a detailed distribution analysis for rupee rate series, including test for mixture of normal distributions. In addition, intervention analysis, mainly used for legal impact assessment, and by sociologists and experimental psychologists, was employed to study the foreign exchange market. This methodology does not seem to have been applied in studies of structural changes in financial markets before. Further, more relationships between rupee rate and variables like share price index and its differential, and liquidity ratio, have been studied.